

CLAIMS

What is claimed is:

1. An anti-lock braking and traction control system for a vehicle having wheel brakes and a clutch, the clutch selectively transferring drive torque from a first shaft to a second shaft, the system comprising:

a source of pressurized fluid;

an actuator adapted to selectively supply said pressurized fluid from said source to the wheel brakes and the clutch; and

a controller in communication with said actuator to control the duration and magnitude of pressure supplied to the wheel brakes and clutch.

2. The anti-lock braking and traction control system of claim 1 wherein said actuator includes a plurality of pressure modulators operable to regulate the pressure of the fluid supplied to the wheel brakes and the clutch.

3. The anti-lock braking and traction control system of claim 2 wherein said actuator includes a pressure sensor operable to provide a signal indicative of the fluid pressure exiting one of said plurality of pressure modulators.

4. The anti-lock braking and traction control system of claim 3 wherein said clutch is operable to selectively drivingly couple a first shaft to a second shaft.

5. The anti-lock braking and traction control system of claim 4 wherein said clutch is a transfer clutch in a transfer case and said second shaft is drivingly coupled to a set of wheels.

6. The anti-lock braking and traction control system of claim 5 further including vehicle sensors being operable to provide signals to said controller indicative of vehicle operating conditions.

7. The anti-lock braking and traction control system of claim 3 wherein said pressure sensor is in communication with said controller, said controller being operable to control said pressure modulators to provide a target pressure based on feedback from said pressure sensor.

8. A vehicle comprising:

an engine;

a primary driveline coupled to said engine and having a pair of rear wheels, each rear wheel being coupled to a rear wheel brake;

a secondary driveline having a pair of front wheels, each front wheel being coupled to a front wheel brake;

a clutch operable for selectively drivingly interconnecting said engine to said secondary driveline;

an actuator operable to selectively supply pressurized fluid to each of said front wheel brakes, said rear wheel brakes and said clutch to apply said brakes and said clutch; and

a controller operable to signal said actuator to supply a predetermined pressure to at least one of said brakes and said clutch.

9. The vehicle of claim 8 wherein said actuator includes a plurality of pressure modulators and a plurality of pressure sensors, said pressure sensors being operable to provide said controller signals indicative of the pressure provided by said pressure modulators.

10. The vehicle of claim 9 wherein one of said pressure modulators is operable to vary the pressure of fluid supplied to said clutch.

11. The vehicle of claim 10 further including a pump and an accumulator plumbed to supply said actuator, said accumulator operable to store a volume of pressured fluid.

12. The vehicle of claim 8 wherein said controller also controls said vehicle engine.

13. The vehicle of claim 8 further including a plurality of vehicle sensors operable to provide signals to said controller indicative of vehicle operating conditions.

14. The vehicle of claim 8 wherein said actuator is operable to simultaneously provide pressurized fluid to each of said wheel brakes and said clutch.

15. The vehicle of claim 8 further including second and third clutches, said actuator being operable to supply pressurized fluid to said second and third clutches.

16. The vehicle of claim 15 wherein said second clutch is mounted in a drive axle assembly and operable to modulate torque supplied to one of said pair of front and rear wheels.

17. A method of controlling the stability characteristics of a vehicle having a controller in communication with an actuator, a primary driveline with a first set of wheels and brakes as well as a secondary driveline with a second set of wheels and brakes, the vehicle having a power transfer mechanism with a clutch for selectively drivingly interconnecting the primary and secondary drivelines, the method comprising:

determining if one or more of the brakes and the clutch should be actuated to maintain vehicle stability;

determining a fluid pressure to be supplied to the brakes and the clutch;

supplying pressurized fluid to the brakes and clutch to be actuated;

providing a signal to the controller indicative of the pressure being supplied to the brakes and the clutch; and

modulating the pressure supplied to provide the desired pressure.

18. The method of claim 17 further including determining the pressure supplied to each brake and clutch.

19. The method of claim 17 further including simultaneously supplying pressurized fluid to at least one brake and one clutch.

20. The method of claim 19 further including pumping fluid to the actuator and storing pressurized fluid in an accumulator.

21. The method of claim 17 further including controlling the pressure for actuating the brakes with a second actuator separate from the actuator used to control the pressure for actuating the clutch.

22. The method of claim 17 further including supplying fluid for actuating the brakes from a first source and supplying the fluid for actuating the clutch from a second source.